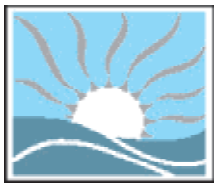
Genesis

VOICE OF STUDENTS



Myth: silver sulfadiazine is the best treatment for minor burns

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It is traditional teaching and practice that silver sulfadiazine (SSD) is the agent of choice for the outpatient management of minor or partial-thickness burns. Published reports show, however, that other methods of outpatient burn management are superior. Indeed, it is difficult to find results of any trial in which SSD is the preferred treatment.

The American Burn Association defines minor burns, which require only outpatient management, as one of the following:

- partial-thickness burns that are less than 15% of the total body surface area (TBSA) in people 10 to 50 years of age
- partial-thickness burns that are less than 10% TBSA in children younger than 10 years or adults older than 50 years of age
- full-thickness burns that are less than 2% TBSA in anyone[1]

The definition also requires that the patient has no other injuries.

To determine the optimal method of outpatient burn care, the clinician must consider the goals of outpatient burn management: rapid healing, prevention of infection, patient comfort, compliance, cost, maintaining full function, and returning the patient to full productivity during the treatment period.[2]

Honey, an inexpensive, simple, and natural substance, has been used since ancient times to treat burn wounds. In 1998, Subrahmanyam randomly assigned 50 patients with less that 40% TBSA partial-thickness burns to 1 of 2 treatment groups.[3] The groups were similar in gender, mean age, mechanism of injury, and burn surface area. Twenty-five patients were treated with pure, unprocessed, undiluted honey, and 25 patients were treated with SSD-impregnated gauze. Dressings were changed daily, and the wounds were inspected every 2 days until healed. Biopsy specimens for analysis and culture were taken from the wounds on presentation, day 7, and day 21. In the honey-treated group, 84% of the patients showed clinical granulation and epithelialization of the wound by day 7, and 100% showed such progress by day 21. In the SSD-treated group, wound healing was evident in 72% by day 7 and in only 84% by day 21, although these differences were not statistically significant. By day 21, wound healing was complete in all of the patients in the honey-treated group and in only 21 of the 25 patients in the SSD-treated group ($p < 0.05$).

Results of another study suggest that honey has antibacterial properties that are superior to those of SSD.[4] Subrahmanyam randomly assigned 104 patients with less than 40% TBSA partial-thickness burns to 1 of 2 groups. Fifty-two patients were treated with honey, and 52 patients were treated with SSD. Biopsy specimens for culture and sensitivity determination were taken on admission, day 7, and day 21. Honey was superior to SSD cream for preventing bacterial growth in the burn wound and for wound healing ($p = 0.05$). Although Subrahmanyam's studies were not conducted in an outpatient setting, and the TBSA of partial-thickness burns was as much as 40%, these results suggest that honey may be a simple, inexpensive, alternative—and probably superior—dressing to use when treating minor burns.

The use of synthetic alternatives in the treatment of minor burn injuries has been explored. In 1990 Wyatt et al compared hydrocolloid dressing (Duoderm) to SSD cream for the outpatient management of second-degree burns.[2] Duoderm is a flexible sterile dressing that has an outer layer of polyurethane foam and an inner adhesive layer of a hydrocolloid polymer complex. The foam layer extends beyond the adhesive hydrocolloid layer, forming a border that adheres to the skin. Fifty patients with burns of less than 15% TBSA, who were evaluated within 24 hours of injury and did not require hospitalization, were randomly assigned to 1 of 2 groups. The groups were similar in age, gender, and number of participants. One group was treated with Duoderm, the other with SSD cream. The patients were reexamined at least biweekly, when wound-bed healing, wound-margin healing, pain, number of dressing changes between visits, and ease of dressing application and removal were assessed.

At the time of the final evaluation, the burns were photographed and inspected for appearance of the healed burn, repigmentation, wound contraction, approximate time for dressing change, patient compliance, limitation of activity, and number of days until healing was complete. Compared with those in the SSD-treated group, burns in patients treated with Duoderm healed faster, showed better appearance after healing and better repigmentation, required fewer and less elaborate dressing changes, and were less costly to treat. Treatment with Duoderm was associated with significantly less limitation of activity (91% of patients had no limitation with Duoderm vs 45% of patients treated with SSD, $p < 0.01$), and better patient compliance (100% compliance with Duoderm vs 85% with SSD). Duoderm was also less expensive when compared with SSD dressings ($11.30 vs $26.00 for a

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Honey prevents bacterial growth and promotes healing of minor burns

1-week supply). In light of these results, Duoderm seems to be a more effective alternative to SSD for the outpatient management of minor burns.[2]

Another membrane-like dressing, Biobrane, is also effective treatment for minor burn injuries. Biobrane is a bilayer, semisynthetic dressing composed of knitted-elastic nylon fabric that is mechanically bonded to a thin, Silastic, semipermeable membrane and coated with collagen polypeptides. In a prospective study of 52 patients with partial-thickness burn wounds less than 24 hours old, Gerding et al randomly assigned 30 patients to treatment with Biobrane and 26 patients to treatment with SSD.[5] Wounds were inspected 24 to 36 hours after initiation of therapy and twice a week thereafter. Patients with burns treated with Biobrane healed faster (10.6±>0.8 days vs 15.0±1.2 days, $p < 0.001$), had less pain, and incurred lower treatment costs.

CONCLUSION

The traditional idea that SSD cream is the first-line treatment for minor burn wounds is archaic. Other methods are better and more cost effective. Evidence exists that the use of SSD may place patients at increased a risk of developing neutropenia, erythema multiforme, crystalluria, and methemoglobinemia.[3]

References

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